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V.—*Report by Lieut. Helpman, R.N., Commander of Colonial Schooner Champion, on an Expedition to examine Coal discovered on the Irwin River. 1846.*

[Read 13th Dec. 1847.]

HAVING received the horses and cart, together with the necessary supplies, on board, I left Fremantle at 5 A.M., December 4th, and, with a fine steady breeze from the S.E., kept well in sight of the coast as far as Jurien Bay, keeping up a chain of bearings. Numerous small islands and reefs front the coast about 4 or 5 miles off shore, from a few miles north of the Winding Sheet to this bay.

December 6th.—At 9 A.M. we anchored in Champion Bay, and immediately commenced landing the horses, cart, &c. We saw several native fires in the Chapman, and at 11 A.M. were met by 17 natives, who were particularly friendly, and showed us water at the back of the large white sand-patch. This was very fortunate, as we failed in getting any by digging. At 2 P.M. another party of natives joined, making 26 in number: they were remarkably fine men. Whilst we were at dinner, they succeeded in stealing three small tomahawks, and had got clear away with two before discovery; the third we found partly buried in the sand. When they first came down the horses astonished them very much, particularly when they came swimming on shore.

7th.—At 5 A.M., having all quite ready, we left, and keeping S.S.W. $1\frac{1}{2}$ mile, came on the beach at Port Grey, which we followed to Point Grey, a small, low, rocky point. We turned E., and immediately came to the dry sandy bed of the Greenough. That this bay is the Port Grey I am confident, and its appearance fully bears out Captain Grey's opinion. It has an extensive reef running S. from Point Moore, and one to the N. from Point Grey, and a centre one leaving a clear opening on each side. Excepting from the high ridge of sandhill and the wide beach, I should have felt positive a good harbour was to be found here. The northern part offering a snug appearance, I was anxious to have it sounded.

The natives who had been with us yesterday followed to the Greenough, and on this occasion brought their women. They showed a small well of water, which was very indifferent. The water of the river lay back about 150 yards, and was quite salt. We kept on the left bank of the river, which for the first 3 miles was about 50 yards wide. From a high sand-hill we saw the river still trending to the S.E., and the coast-line was quite visible, having a small ledge about 6 miles off. At 4 h. 15 m. we halted at the bed of the river, where we found a native well, and, clearing it out 4 feet deep, we obtained good water.

8th.—Left the encampment at 6 h. 15 m. A.M., and followed the right bank over the same kind of country as yesterday till 7 h. 10 m., when we crossed the bed (being 20 feet deep and 50 feet wide). We came now upon a fine open piece of land, extending from one side of the plain to the other $1\frac{1}{2}$ mile, the general course S.E. At 7 h. 15 m. we passed a break in the eastern hills, probably the main channel of the river, as after this the bed was scarcely discernible: at noon we were at the head of the valley. Shortly after entering the scrub we came to a very singular natural basin in the limestone rock; it was about 50 yards in diameter, and 20 feet deep. Mr. F. Gregory went to the top of the highest and nearest sand-hill, and saw that the only route was by turning to the N.E. by N., over low ridges of very scrubby limestone country. We were now close to Mt. Hill, and the country, so far as we could see, had much the appearance of that we were on. We had considerable difficulty in passing over 5 or 6 miles of this, and at 6 halted quite fatigued.

9th.—Keeping in a S.E. by S. direction over a wretched country, very thinly timbered, at 6 A.M. we came on the high land dipping to the S.E. towards the Irwin, descending which we came on a small flat, and at 6 h. 40 m. passed through a gum-forest; at 7 we passed along the side of a sandy ridge,—a few small flats well-grassed and numerous warren-holes were passed; at 8 h. 30 m. flights of white cockatoos and a well-defined line of trees clearly showed the river at no great distance. We here met with the first native hut; it was well *plastered* outside, about 6 feet high inside, and capable of containing 10 persons easily. At 9 h. 40 m. we came to the Irwin, and found water in small pools. The banks were about 30 feet high, and the river 80 yards wide, although in ordinary winters I do not think the water runs over the whole of it; the banks were limestone and clay; the bed coarse sand, with trees growing in it; the lat. $29^{\circ} 13' 50''$.

11th.—At 6 h. 15 m. left in an E.N.E. direction, and in 10 min. crossed the flat, and ascended the high sand and scrub-hills, along which we continued at an average distance of $\frac{2}{3}$ of a mile from the river, till 8, when we turned E., and at 8 h. 40 m. came on extensive warren-grounds on the edge of a fine wide grassy flat, through which the river runs; this we followed till noon, when we halted for a short time at a well, in which we found good water 2 feet 6 inches below the surface.

We remained here till 3 h. 35 m.; and, as we were anxious to know how far we could be certain of water, Mr. Gregory and myself kept near the river while the cart made for a very remarkable piece of land, which had much the appearance of an island. The valley of the river was very small; the higher route in which the cart kept was ironstone and scrub. We found plenty of water

in pools under the cliffs at this point, which we reached at 5, when we encamped at a very pretty spot, the valley narrowing in until the hills nearly met. We were here received by a party of natives, who came without any hesitation to welcome us. They were not in the least surprised or so curious as the others had been, and were much inferior in appearance to our friends at Champion Bay. As some of our men were suffering from sore feet, the cart not in very good condition, and water not at all to be relied on, I was obliged to divide the party. The natives encamped on the opposite side, and were very quiet. Latitude $29^{\circ} 9'$.

12th.—Leaving six of the party with all the spare provisions, lightened the cart, and enabled us to push along much faster; we kept about N.E. near the river, over a scrubby, hilly country, till 8 h. 30 m., when we passed a range of wooded hills running from the S., which came close down to the river. At 8 h. 40 m. we came to a pool of fresh water; a native well was found close to the edge of this, out of which some pieces of shale had apparently been thrown; but, as none could be found elsewhere, I presume these must have been washed down. At 9 h. 50 m. we passed another pool: the river had here worked a deep channel through clay and red sandstone.

All the ranges were flat-topped, with very abrupt terminations, giving a singular appearance to the country. We were now crossing a belt of tolerably good grassy country, extending for a few miles in a S. direction, most probably to the South Irwin. We continued on a course for the end of a high range, passing over during the latter part a very poor piece of land covered with trap, granite, and quartz. At 12 h. 45 m. we ascended the first table-land, consisting of sandstone and ironstone. This range extended S.S.E. for many miles, and had a dark line of red sandstone running along it about 12 feet from the top. On reaching the summit we found it very scrubby, and difficult to pass with the cart. Several deep gullies ran into the high land, one of which we crossed, but headed the others. This occupied a long time, and it was near 3 before we came to the deep gully in which the coal was, and in which the river runs. The ranges are composed of red and white sandstone; the few trees in the valley were stunted, principally of white gum and wattle. At 5 we went down to the coal. The valley, about three-fourths of a mile wide, was well-grassed, and we found plenty of good water by digging a few inches. The river is here about 25 yards wide, running through sandstone and shale of different kinds. Salt water was lying on the coal in small quantities. The coal-fire made by Messrs. Gregory had left nothing but very fine ashes and no cinders. The latitude of the bivouac, which was on the edge of the table-land, half a mile S.S.E. from the coal, was $28^{\circ} 57' 42''$.

13th.—We were not long in digging out about 3 cwt. of coal from about 4 feet deep; the seam was nearly 6 feet thick, and ran entirely across the bed of the river and under the bank on both sides. At the well, which was a quarter of a mile higher up, very good shale was dug.

At 11 we were ready to return, having 3 cwt. of coal in the cart. We shortened our route over the table-land by avoiding the gullies, and found it a very easy road; the thick brushwood made walking rather uncomfortable, but it was easy for the cart. Descending these ridges, we kept nearer the river than in going, and found much better travelling. The upper pool was reached at 2 h. 30 m., and at 5 we again moved on, passing close to the river over well-grassed flats, till we came to the depôt hill, which we reached at 8, and found the party quite well, but they had been dreadfully tormented with flies. The natives paid them but one visit, and had all decamped in the morning. The cart, unfortunately, was capsized just before it came in, and was much injured. It was not in good order before; but this shake rendered it doubtful if we could take it back, more particularly weighted as it now was.

14th.—The flats we passed were all well grassed, and the travelling very easy; at 11 h. 15 m. we halted at the marked tree, the water in the well still plentiful. The heavy dews and sharp cold nights had given us all colds. We remained here to rest the horses; they were looking a good deal knocked up.

15th.—At 5 h. 30 m. we started for the pool, passing close to a high piece of table-land over a very scrubby country. Two kangaroos rewarded our sportsmen for their early labour; they were the only ones killed; we had seen but few, not a dozen in all. At 11 h. 15 m. we reached a pool about one mile lower down than the one we had previously stopped at. We crossed a small gully close to this, on the upper part of which Mr. Gregory saw a spring in his last trip. The flats here are about a quarter of a mile wide, of a good light soil, and well grassed.

16th.—At 3 h. 30 m. commenced packing, and at 6 h. 10 m. started; a few natives followed us; ten minutes' walking took us to the scrubby limestone hills. Preserving a course about 329° we gradually ascended and kept on the high ground. I was desirous to pass the valley where we supposed the Greenough ran to the eastward. At 10 h. 45 m. we crossed a small watercourse trending to the westward, Mount Hill 335° . At noon we changed the course to 303° , and at 1 stopped for dinner in a small flat well grassed and extending to the S.W.; clumps of wattle acacia were frequent. At 2 h. 15 m. started on a N.W. course, at 3 h. 5 m. ascended a small sand hill and saw into a valley about a quarter of a mile wide, extending N.N.W. In a small open

piece of ground surrounded by clumps of wattle, we found several wells of considerable size, about 8 feet deep. We halted here for the night.

17th.—At 6 we were once more under weigh, and at about 8, after passing over a very mixed country, but generally scrubby, came into a large valley extending to the N.W.; this was very similar to the one through which we walked on our way up the first day, though not so extensive; we were not long, however, before thick brushwood compelled us to get on the high land, a short distance only from the valley we were endeavouring to look into. The higher land was very scrubby and of limestone. We shortly came to the Greenough running in a westerly direction, and most probably from Wizard Peak; it was quite dry. Passing this, we came upon the level country of the first day, and at 3h. 30m. halted at the limestone well, where we remained for the night.

18th.—Left at 6 h. 15 m., and following the old route, reached the beach in Champion Bay about noon. The vessel had experienced very heavy S. and S.S.W. winds, the barometer constantly low, but fine bright weather. From the summit over Point Grey, we had a clear view of Port Grey; the southern part does not offer the least protection for vessels, a heavy surf rolling in, but the appearance of the northern part was very favourable.

The cart was now in too dilapidated a condition to be taken round Moresby's flat-topped range, and as the three horses would move over the ground fast, and enable the country S. of the Hutt to be examined, I considered it best to let two of the Messrs. Gregory and Lieutenant Irby, who volunteered, accomplish that part of my instructions, whilst Mr. J. Gregory and myself examined Port Grey.

20th.—At 8 the party started, and the forenoon was occupied in taking the cart and things off, and getting the boat ready for Port Grey: it however continued to blow a gale of wind from the southward until the 22nd, when I passed round Point Moore, and into Port Grey. There is plenty of room for boats between the reefs and the point. We found the part between the long reefs from Point Moore and the reef running off from the land foul, and although there was not much wind, it was breaking in 5 fathoms. This I account for by the fact that the reefs are not level with the water, and the outer side of them having 14 fathoms close to them in a very heavy swell.

A very snug little harbour is formed by the reef extending from the land in the depths of the bay. It was quite smooth, the reef was dry, and we had plenty of water close to it ($2\frac{1}{2}$ fathoms). The point of this natural jetty shuts in with Point Grey, bearing S. by E., so that no wind could hurt. I consider this little place

admirably adapted for small coasters; the fresh water is close to it, and an anchor could easily be landed on the jetty, to which they would secure. The passages between the outer reefs are quite clear. The return of very strong breezes compelled us to get into Champion Bay, for, after we left the small bay, the sea ran so high that it required one man constantly to bale the boat.

At 1 the three horses were seen near the Chapman, and by 2 the exploring party were down. Messrs. Gregory's report was highly favourable: they passed over an excellent country, as shown by the subjoined journal.

20th.—At 6 h. 30 m. started from Champion Bay, following the beach till 6 h. 35 m., when we turned N. 87° E. over a scrubby country; at 7 crossed the Chapman, at 8 Mount Fairfax bearing S. $\frac{1}{4}$ mile; turned N. 66° E., the country very thinly dotted with wattle, scrub, and some grass. At 8 h. 30 m. crossed a large branch of the Chapman with several small pools of water, the banks high and steep; the country then became more scrubby, with gravelly soil; at 9 altered our course to N. 18° E. and at 9 h. 30 m. crossed the Chapman, below a small pool of water apparently permanent; 9 h. 50 m. passed over a granite ridge, when the country improved and several fine patches were seen to the eastward; at 10 h. 20 m. ascended a high flat-topped hill of red sandstone resting upon granite, which proved to be the eastern part of Moresby's flat-topped range; from this summit Mount Fairfax and Wizard Peak were visible. To the eastward the hills were apparently grassy and gradually rose from the Chapman for 8 or 10 miles; at 11 came on a large party of natives, some of whom accompanied us for one mile, pointing out several places where we could obtain water; at 11 h. 10 m. turned N.E. and entered an extensive valley with patches of grass, but not of a good quality; at 30 m. crossed a watercourse trending to the westward; following it for half a mile, we turned N.W. over a scrubby flat till 1 h. 5 m., when we struck the bed of a small stream, with several small pools of water in it. Halted for dinner, then renewed our route up the stream to the northward; at 3 it turned to the east, we therefore halted for the night by a small pool with good feed on the banks.

21st.—At 6 h. 35 m. continued our route N. over a hilly country of scrub and grass, with York gums and wattle; the prevailing rocks were quartz, red sandstone, and granite; at 8 h. 30 m. crossed the bed of a stream 8 yards wide with brackish pools; at 8 h. 50 m. came upon a good grassy country, which appeared to extend 8 or 10 miles E. and N. Clumps of York gums, sandalwood, jam, and black wattle were observed on some of the hills; crossed several inconsiderable watercourses, some trending E. and others W., till 9 h. 45 m., when we ascended an elevated

sandy table-land covered with short scrub; at 10h. 35m., not seeing any immediate improvement to the northward, changed the course to the west; following a deep gully, we struck a small stream trending S.S.W. with numerous small pools of brackish and salt water, traced it down till 11 h. 25 m., when we found a small hole scratched in the bed between two salt pools; the water in the hole was perfectly fresh. Halted till 12 h. 53 m. when we resumed a westerly course, crossing several deep grassy valleys running to the S. At 1 h. 35 m. turned 211° over a hilly quartz and granite country, with very good grass in the valleys and on the tops of the hills; at 2 h. 30 m. again struck the stream bed, the country improving, being covered with grass and thinly scattered jam and black wattle as far as the eye could reach. At 3 h. 50 m. this stream being joined by another from the eastward, turned N.N.W.; following its course, at 4 h. 30 m. passed a brackish pool, and at 5 bivouacked in the bed of the stream, obtaining water by digging a few inches in the sand.

22nd.—At 6 left our bivouac and steered 210° over a fine grassy country; at 7 ascended a small ironstone hill, from which we observed a deep valley trending S.W. In the N. and W. the grassy country extended for at least 10 or 12 miles, presenting to our view 50,000 or 60,000 acres of sheep pasture of a fine description; continued a S.W. course over a granite country with some good patches of grass, but not equal to that passed yesterday; at 8 crossed a small stream bed, which we considered to be the Bowes of Captain Grey; we then ascended the steep limestone hills on the western bank of the stream, from which we observed the large sandpatch on Point Moore bearing 170° ; turning south we crossed the mouth of the Bowes, quite dry, then altered to S.E., with the intention of tracing Captain Grey's route towards Champion Bay; after traversing sandy downs resting on limestone, about 4 miles, came on a deep ravine in the limestone hills: one of the horses being footsore we were obliged to return to the beach, which we followed to Champion Bay, where we arrived at 1, passing the mouths of the Buller and Chapman, and another small stream.

23rd.—Employed getting the horses on board, before the northerly wind got too fresh; they looked a good deal fatigued; by 9 we were under weigh, and with strong headwinds did not reach this until 27th.

With regard to the practicability of getting the coal down, I think there can be no doubt it could be done; the road by which we returned offered no difficulties but such as would easily be surmounted; the chief one would be the gullies, running out from the table-land near which it lay, but this would be very easily done, by a road being cut at the foot; that there is plenty

of coal there can be no doubt, and the river running over what we saw would not be a difficulty, as the shaft could be sunk on either bank.

I have several reasons for supposing Champion Bay safe during winter, although open to the northward and westward; the first is the low sand beach, then the vegetation growing close to the high water mark, say 20 yards, whilst all the beach to the southward of Point Moore was blown into high ridges, and was generally about 30 or 40 yards wide: from all I observed I should say that if northerly gales reach there, they must be very much more moderate; but in Port Grey there was evident proof of the effect of southerly winds.

The small snug harbour in Port Grey is quite sheltered, and admirably fitted for small vessels loading or unloading.

There was a great want of timber over the whole country; but I do not think there is any doubt that water could be obtained anywhere.

Fremantle, 31 Dec. 1846.

VI.—*Memorandum respecting an old Globe (supposed date about 1520) in the Public Library of Frankfort-on-Maine; brought there from a Monastery about sixty years ago.* By Mr. H. BLANCHARD.

DATE of discoveries (America).

America.—Columbus (born 1435) left Palos on the 3rd of August, 1492; by the 7th of October he had sailed 750 leagues to the westward of the Canaries, and expected to find the island of Cipangi (Japan). He discovered land that evening, viz., St. Salvador, one of the Bahamas; he arrived at Cuba on the 28th of October, still believing himself to be in Asia; and, coasting the N. side of Hispaniola, returned to Spain.

On the 25th of September, 1493, he sailed on his second voyage from Cadiz; made Dominica and Guadaloupe, surveyed Hispaniola, Jamaica, and Cuba, and returned.

On the 20th of May, 1498, he sailed from St. Lucar on his third voyage; made Trinidad and the main land adjacent, thence bearing up for Hispaniola, he returned to Spain under arrest. During this voyage Ojeda sailed from Spain (having Amerigo Vespucci on board his ship) on a voyage in which he coasted from Trinidad to near Darien.

On the 9th of May, 1502, Columbus sailed on his fourth voyage from Cadiz, his attention being wholly directed to discover the strait which he supposed to exist between N. and S. America. He